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SOME RECENT LITERATURE ON THE STONY CORALS
AND A REVIEW OF 'STEINKORALLEN' VON DR.
EMIL VON MARENZELLER.*

DURING the time that has elapsed since the beginning of 1902, students of the *Madreporaria* have shown an unusual activity, and quite a number of very valuable papers, approaching the group from various sides, have been published. A few of the most important will be mentioned. Dealing with fossil corals there are, Lebedew's 'Die Bedeutung der Korallen in den devonischen Ablagerungen Russlands,'† Felix's splendid work on 'The Cretaceous Corals of the Gosau,'‡ and many shorter papers. During this period Duerden has published the results of his elaborate investigations on the 'West Indian Madreporarian Polyps.'§ Verrill is the author of several interesting memoirs on West Indian, Bermudan and Brazilian corals,|| and 'Notes on Corals of the Genus *Acropora*.'¶ Gardiner has published 'South African Corals of the Genus *Flabellum* '** and Parts I. and II. of his '*Madreporaria*' of the Maldive and Laccadive Archipelagoes.†† Döderlein has published an excellent memoir on the genus '*Fungia*.'‡‡ Bernard has given us a most painstaking and elaborate monograph on the genus *Goniopora*.§§ We are indebted to Alcock for an excellent paper

* *Wissenschaftliche Ergebnisse der deutschen Tiefsee-Expedition auf dem Dampfer Valdivia*, 1898-1899, Bd. VII., pp. 261-318, Taf. xiv-xviii, 1904.

† 'Mem. Comité Geology,' St. Petersburg, Vol. XVII., No. 2, pp. ix, 1-180, 5 pls., 1902.

‡ 'Die Anthozoen der Gosauschichten in den Ostalpen,' *Palæontographica*, Bd. xlix, pp. 163-360, 19 Taf., 1903.

§ 'Mem. Nat. Acad. Sci.,' Washington, Vol. VIII., pp. 399-597, 25 plates, 18 figs., 1902.

|| *Trans. Conn. Acad. Sci.*, Vol. XI., pp. 63-206, 26 pls., 1902.

¶ *Ibid.*, pp. 207-266, 7 pls., 1902.

** 'Marine Investigations in S. Africa,' Vol. II., No. 6, pp. 113-154, 4 pls., 1902.

†† Reviewed in this Journal, Oct. 14, 1904.

‡‡ 'Die Korallengattung *Fungia*,' *Senckenberg. Naturforsch. Gesellsch.*, Bd., XXVII., Heft I., pp. i-iv, 1-162, 25 Taf., 1902.

§§ 'Brit. Mus. (Nat. Hist.) Cat. Madreporarian Corals,' Vol. IV., pp. i-viii, 1-206, 14 pls., 1903.

on the 'Deep-Sea *Madreporaria* of the Siboga Expedition.'* Besides these longer contributions on recent corals, a large number of shorter ones have appeared.

Never before have the *Madreporaria* received so much earnest attention. The group is being studied in almost every conceivable way by able investigators. The standard of excellence that prevails in these modern contributions is very high, it probably has not been excelled. But before the ultimate goal is attained, *i. e.*, the understanding of the relation of the organisms to their environment, the unraveling of the geologic history of the group and the formulation of a classification along philogenetic lines—much more work must be done. However, the outlook was at no previous time so bright as it is now. The one side that most demands attention is that of experimental physiological work—experimental study of the effects of environment on variation. These problems could be taken up by some of the marine laboratories. Probably much could be done by the Carnegie Laboratory on the Dry Tortugas.

Another valuable paper, Dr. von Marenzeller's 'Steinkorallen' of the *Valdivia* expedition, has just come into my hands.

The *Valdivia* obtained with 33 hauls of the dredge 29 species of stony corals. The depth varied from 44 to 2,278 meters; in only eight cases was it greater than 900 meters; in two cases it was less than 100.

There were six stations in the Atlantic Ocean, distributed from the west coast of Scotland to the Cape of Good Hope. The other stations are divided into five groups:

- I. Cape Angulhas and Angulhas Bank, southern Africa.
- II. Bouvet Island, Lat. 54° 29' 3" S., Long. 6° 14' E.
- III. Islands of St. Paul and New Amsterdam, in the southern Indian Ocean.
- IV. West of Sumatra.
- V. From Dar-es-Salam northward along the eastern coast of Africa.

It will thus be seen that the collections were made in the Atlantic and Indian oceans.

* 'Siboga-Expeditie,' Mon. xvia, pp. 1-51, 5 pls., 1902.

The Bouvet Island locality is considered especially interesting because it lies so far south and connects with the Antarctic Madreporarian fauna. One species, *Caryophyllia antarctica* n. sp., was found there.

After the remarks concerning the areas from which the corals were obtained, are: 'List of the stations at which *Madreporaria* were collected,' for each station the latitude and longitude, depth, an occasional remark on the character of the bottom, and the species found there are given; 'The depth at which the *Madreporaria* occurred,' the species are listed according to the depth at which they were found; 'List of the species,' each species named being followed by the appropriate station numbers.

Then a detailed consideration of the species is given. The following is a list of the genera, with the number of species referred to each and the names of those described as new:

Desmophyllum, 1; *Flabellum*, 7, *F. deludens* nov., *F. stabile* nov., *F. chunii* nov., *F. magnificum* nov., *F. inconstans* nov.; *Sphenotrochus*, 1, *S. aurantiacus* nov.; *Deltocyathus*, 1; *Caryophyllia*, 5, *C. antarctica* nov.; *Stenocyathus*, 1; *Aulocyathus* gen. nov., 1, *A. juvenescens*, nov.; *Ceratotrochus*, 1, *C. delicatus* nov.; *Stephanotrochus*, 2, *S. campaniformis* nov., *S. explanans* nov.; *Lophohelia*, 1; *Amphihelia*, 1; *Solenosmilia*, 1; *Parasmilia*, 1; *Bathyactis*, 1; *Balanophyllia*, 1; *Dendrophyllia*, 1; *Coenopsammia*, 1; *Anisopsammia* gen. nov., 1.

The new genus *Aulocyathus* resembles *Schizocyathus* Pourtalès in external appearance; each of the four of von Marenzeller's specimens was attached to the inner side of a fragment of the same species. It is a member of Duncan's *Trochocyathoida* and because of the absence of pali belongs in a group with *Ceratotrochus*.

The genus *Anisopsammia* is proposed for the *Amphihelia* (subsequently, ? *Stereopsammia*) *rostrata* of Pourtalès. This genus is separated from *Coenopsammia* by having the calices on one side of the corallum, facing one way. I consider the genus of very doubt-

ful value, being inclined to the opinion of Pourtalès that his *Dendrophyllia profunda* and ? *Stereopsammia rostrata* are congeneric.

One of von Marenzeller's generic names must be changed. Professor Verrill* has shown that *Madrepora oculata* Linn. = *Amphelia* or *Amphihelia oculata* of nearly all authors from Milne Edwards and Haime to the present time, must become the type species of the Linnaean *Madrepora*. This is an extremely inconvenient change, but unless we throw over entirely our rules of nomenclature it must be made.

The validity of a few of the species is doubtful.

The five plates that illustrate the paper are very good.

This is an excellent paper and the criticisms are of a minor nature. It supplements the work that Alcock has been doing on the deep-sea fauna of the Indian Ocean and on that around the Dutch East Indies. I have practically completed a report on the deep-sea corals dredged by the United States Fish Commission around the Hawaiian Islands and the illustrations are far advanced. The Hawaiian fauna, although it contains quite a number of new things, bears very considerable resemblance to that of the East Indies and the Indian Ocean. The Fish Commission collections will make an important addition to the Indo-Pacific faunas.

There are in our United States National Museum considerable collections of deep-sea corals dredged off the western coast of America. These should be studied in connection with the general subject of Indo-Pacific deep-sea faunas, to which Moseley, Alcock and von Marenzeller have already made contributions of so much value. It is my hope that before a great while I shall be able to present a suitable report on these portions of our unstudied collections.

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SMITHSONIAN INSTITUTION,
WASHINGTON, D. C.,
October 19, 1904.

* *Trans. Conn. Acad. Sci.*, Vol. XI., pp. 110-113, 1902.